



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/674,648	01/05/2001	Bodo Furchheim	7054-101XX	1304
62836 7590 07/22/2011 BERLINER & ASSOCIATES 555 WEST FIFTH STREET 31ST FLOOR LOS ANGELES, CA 90013				
EXAMINER				
DIAZ, THOMAS C				
ART UNIT		PAPER NUMBER		
3656				
MAIL DATE		DELIVERY MODE		
07/22/2011		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

09/674,648

Applicant(s)

FURCHHEIM ET AL.

Examiner

THOMAS DIAZ

Art Unit

3656

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 October 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GA-06)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 3-5, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Jordan (USP 4382390).

Mannesmann discloses a method for the manufacture of a camshaft from a tube (1), the camshaft having bearer rings (2) attached thereto, the method comprising the following steps; placing bearer rings, produced in a separate method and in correspondence with prospective locations of hollow cams on the cam shaft (see figures), in a high internal pressure forming tool (the assembly is manufactured in a die in which the tube is or could be hydraulically widened, col.2, lines 26-27; although the rubber rod as well could read on a high internal pressure forming tool) together with the tube to be formed, whereby the bearer rings are attached by expansion of the tube in a frictional and interlocking manner (fig.1, tube is hydraulically expanded with fluid pressure), each of the bearer rings having outer surface and an inner surface (see fig.1), and wherein the bearer rings possess the same wall thickness (see fig.2, they have the same thickness); subjecting the tube to axial forces and a medium under high internal pressure (the tube would undergo axial forces from the die and high internal pressure via the hydraulic fluid or the rubber rod used to expand it within the die. The

die holds the tube in place thus applying axial forces to the tube. There will always be axial forces applied even if they are normal forces) so that the tube expands to form said cam regions wherein the diameter of the tube in said region are greater than the diameter of the tube at the non cam regions (figures 1-2, clearly the tube is greater in the cam regions than the non-cam regions), whereby the shaft has all cams in form and in position on a single piece (see fig. 1; everything is assembled to form a single piece).

Jordan is silent to in a first method step prior to the high internal pressure forming, regions of the tube which are clear of the regions in which the cams are seated are kneaded or upset such that said tube regions which are clear of the cam regions are increased in thickness and/or stretched so that bearing faces, drive and/or control elements are formed from the tube itself.

As to the matter of the end regions being upset by kneading, The Examiner takes Official Notice the fact that a kneading process or round kneading in metal forming art is well known practice. It would been obvious to one having ordinary skill in the art at the time the invention was made to perform the tube ends and regions outside of the cam regions by kneading/upsetting resulting in regions clear of the cam regions having an increased and/or stretched form so that at bearing faces are formed from the tube itself. In fact the placement of the dies themselves would cause such a formation. To change shape or size of any metal element by kneading would have been an obvious process choice.

Regarding claim 3, Jordan discloses that between the cam shaft ends in a step prior to internal high pressure forming bearing faces and the eventual region where the

cams are to be seated, are produced by round kneading and by reducing the diameter in this part to the desired size.

As to the matter of the end regions being upset by kneading, The Examiner takes Official Notice the fact that a kneading process or round kneading in metal forming art is well known practice. To change shape or size of any metal element by kneading would have been an obvious process choice.

Additionally, it is noted as evidentiary reference Harle (USP 5024294) discloses the concept of performing the tube with forging (upsetting) and round kneading in camshafts.

Regarding claim 4, Jordan discloses characterized in that bearing faces are produced between the cams by internal high pressure forming by expanding the tube (see fig.1).

Regarding claim 5, Jordan discloses the bearer rings are hardened in a known manner prior to being placed in the internal high pressure forming tool (the bearer rings are preformed and therefore hardened prior to being attached to the tube).

Response to Arguments

Applicant's arguments filed 06/13/2011 have been fully considered but they are not persuasive.

Applicant argues that Jordan does not disclose subjecting the tube to axial forces.

However, Jordan indeed discloses subjecting the tube to axial forces since Jordan discloses the process of applying a medium under high internal pressure so that

the tube expands into a die. The interaction between the die, the tube alone would generate axial forces, not to mention the interaction via the expansion created by the internal pressure (hydraulic widening) creates axial forces. The claim does not specifically state how the axial forces are being applied and thus given the claims broadest and most reasonable interpretation, Jordan indeed discloses "subjecting the tube to axial forces".

Applicant further argues "Jordan does not disclose axial pressures because he is using a rod or hydraulic means to expand his tube and thus does not have to concern himself of leakage of the "internal pressure". In contrast, applicant submits that during the IHU process shrinkage with respect to the length of the tube will arise. This means that the axial end of the carrier tube 4 and the end piece 2 are no longer in contact. If the end piece and the tube are not in contact it is not possible to uphold the necessary pressure within the tube. Please note that the pressures in an IHU process are very high, namely about 2.000bar (2×10^8 Pa). If this pressure leaks from inside the tube no expansion of the carrier tube will be possible. Hence, applicant's claims recite "subjecting the tube to axial forces..." "Accordingly, not only does Jordan not disclosed 'subjecting the tube to axial forces...' but a person of skill in the art reading Jordan would not be motivated to modify Jordan with the application of axial forces."

However, Applicants arguments appear to be based on facts that are not being claimed. The claim does not require a process involving fluid pressure. Even so, Jordan discloses the use of hydraulic widening which involves the use of hydraulic fluid to expand the inside of the tube thus Jordan discloses an IHU process. Even the use of a

rubber rod could be considered an internal pressure forming tool or method since the rod places high internal pressures on the surface of the tube. The claims do not state how the axial forces are being applied. Thus, given the claims broadest and most reasonable interpretation, Jordan indeed discloses "subjecting the tube to axial forces" as noted in the office action.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please note Swars (5868042) which also shows different functional elements 7 and 10 formed from the shaft itself. USP 2892254, 4693138, 5868042 all discuss the use of hydraulic expansion through the use of hydraulic fluid. Harle (USP 5024294) discloses the concept of performing the tube with forging (upsetting) and round kneading in camshafts.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THOMAS DIAZ whose telephone number is (571)270-5461. The examiner can normally be reached on Monday-Friday 7:30am to 4:00pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571)272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JAMES PILKINGTON/
Primary Examiner, Art Unit 3656

/Thomas Diaz/
Examiner, Art Unit 3656